ABSTRAK

Wireless LAN(WLAN) merupakan jaringan lokal yang menggunakan gelombang radio sebagai media penghubungnya, sehinga mempermudah mobilitas akses internet tanpa harus menggunakan kabel. Teknologi ini sangat dibutuhkan karyawan PT Kanisius untuk bekerja menggunakan *device* mereka, Maka dibutuhkan kualitas layanan jaringan yang baik untuk mendukung pekerjaan karyawan. Untuk mengetahui kualitas layanan jaringan WLAN perlu dilakukan pengukuran,yang meliputi Hotspot *Environment, Site Coverage,* dan Performa jaringan.

Dalam tugas akhir ini, dilakukan pengukuran dan penghitungan pada jaringan WLAN yang dimiliki oleh PT Kanisius. PT Kanisius menerapkan teknologi WDS (*Wireless Distribution System*) dengan satu *Access point* sebagai pemancar, dan tiga repeater sebagai penguat sinyal. Penelitian diawali dengan pengumpulan data berupa peta gedung dan jumlah access point yang telah terpasang. Setelah data tersebut diperoleh dilakukan site survey untuk mengetahui letak dan persebaran *access point* dan *repeater*. Kemudian melakukan pengukuran *coverage* setiap *access point* dan *repeater*. Selanjutnya menguji performa *access point* dan *repeater* serta jaringan dengan parameter *throughput, jitter, packet loss* menggunakan tools *Iperf* dengan cara mengirimkan paket TCP dan UDP berdasarkan degradasi kategori kualitas sinyal.

Hasil yang akan didapat dari analisis beberapa skenario pengujian adalah kesesuaian jaringan WLAN PT Kanisius dengan teori membangun jaringan hotspot, pemetaan c*overage* seluruh *access point* dan *repeater* berdasarkan kategori degradasi kualitas sinyal , *channel overlapping* dan performa perangkat WLAN dan jaringan WDS.

Kata Kunci: *Wireless* LAN(WLAN), *Wireless Distribution System*(WDS), *Iperf, Coverage, Throughput, Jitter, Packet Loss.*

ABSTRACT

Wireless LAN (WLAN) is a local network that uses radio waves as a connecting medium , so that it facilitates the mobility of internet access without using cables. This technology is needed by the employee of PT Kanisius for working by using their own device. The employees need a good quality network services to support their job. To determine the quality of WLAN network service, the measurement which includes Hotspot Environment, Site Coverage, and network performance are needed.

In this thesis, measurement and calculation of the WLAN network owned by PT Kanisius were done. PT Kanisius applied WDS technology (Wireless Distribution System) with one Access Point as the transmitter and three repeaters as the signal amplifier. This research was started by collecting the data such as map of the building and the number of access points that have been installed.
After those data were collected, site survey was done to determine the location and distribution of the access point and repeater. The next step was testing the performance of the access point and repeater as well as network with parameter throughput, jitter, packet loss using Iperf tools by sending TCP and UDP packages based on the degradation of signal quality category.

The result to be obtained from the analysis of multiple test scenarios is the suitability of WLAN network of PT Kanisius with theory building hotspot network , mapping coverage of the entire access point and repeater based on the category of degradation of signal quality, overlapping channel, and WLAN device and WDS network performance.

Key words: *Wireless* LAN (WLAN), Wireless Distribution System (WDS), Iperf, Coverage, Throughput, Jitter, Packet Loss.